

TIMBER SALE REPORT & APPRAISAL

Johnson Creek

**Bighorn National Forest
Tongue Ranger District
July 25, 2016**

Prepared by: Chris Thomas, Forester

Date: July 12, 2016
Revised August 5, 2016

Approved by: /s/ Amy Ormseth Date: July 26, 2016
District Ranger

Timber Sale Report						
Timber Sale Name		Johnson Creek				
Timber Sale Appriser		Thomas/Benson				
Bulletin		Month	4	Latest Bulletin:		BU210716
		Year	2016			
Type of Appraisal:				Dist. No	State No.	County No.
Original		Yes		Tongue	56	Sheridan
Rate Redetermination						
Region		2				
Forest		2				
District		6				
Sale Number		26601				
Quarter		4				
Fiscal Year		2016				
Stars Number		26601				
State		56				
County		33				
Legal		T53N R89W, Sections 1,2				
		T53N R88W, Sections 4,5,6				
		T54N R88W, Sections 29,30,31,32,33,34				
		T54N R89W, Sections 35,36				
Roads						
Construction	no	\$ -	0.00	mi		
Reconstruction	yes	\$ 10,098.00	3.20	mi		
		\$ 10,098.00			Road Costs	
		\$ -			Engineering Reconstruction Services Deposits	
Total Specified Road Cost		\$ 10,098.00				
\$ / CCF		\$ 1.37		Total		
Operating Season:						
Normal Season	Seasons	4				
	Start	7/1/2017				
	End	12/31/2020				
	Midpoint	4/2/2019				
Bid Date		N/A				
Award Date						
Termination Date		12/31/2020				
Road Completion Date		N/A				
Initial Payment Date						
Additional Payment Date						
Contributed Funds		\$0.00	(Normally Zero)			
<p>1. Additional time may be added to a sale that is of an unusual complex nature, contains a restricted operating season due to various restrictions.</p> <p>2. The termination date shown in A(T)19 shall be the last day of the quarter in which the bid opening was held, unless unique circumstances or objectives of the sale would require a different termination date.</p> <p>3. The operating season shall contain a least 6 (six) months of time with the normal operating season to counted as full operating seasons.</p>						
General Information:						
Sale Acres:		2233				
Harvest Acres		595				
Appraisal point		Livingston, MT			79%	21%
					SAW	Non-Saw
Total Volume - CCF		7368			5804	1564
CCF/Acre		12.38			9.753815	2.628789916
CF/Tree		4.68			6.208168	2.444029501
Sale QMD		8.1			9.3	6.1
Tree Density						
No. of Trees		157,480			93482	63998
Average # Trees / Acre		71				
Average slope						
Average skid distance		475				
Net BF/CF Ratio		0.440				
Slash Costs		\$1.08				

Advertised Rates

LP sawtimber 01 product:	\$3.00/CCF
All POL:	\$1.00/CCF

Total cost of funded KV work:	\$9,993
Total KV Collections at advertised rates:	\$9,993
Essential KV:	\$7,150

DESCRIPTION

A. Location

The Johnson Creek timber sale is located within within Sheridan County, Wyoming. The project falls within Management Areas 4.2 Scenery, and 5.11 Forest Vegetation Emphasis. *Slopes range from 0 to 35%. Elevation of the sale area is approximately 7600 to 8600 feet above sea level.*

Access to the sale area is north and south of US highway 14.

B. Land Status

All harvested units are on National Forest Service lands. There are no known encumbrances.

C. Basis for Selecting Area

This area was selected from the Bighorn National Forests 5-year action plan from the direction of the Forest Leadership Team and Forest collaborators. The harvest meets current direction in the Bighorn National Forest Land Management Plan, as well as the Environmental Analysis (EA). The Johnson Creek Vegetation Management Project Environmental Assessment was signed in September 12, 2011.

The project goals are to Maintains and enhances forest vegetation conditions and recreation opportunities while managing fuels to help protect public, firefighters and property in the event of a wildfire.

D. Transportation Routes and Appraisal Points

The sawtimber will be appraised using Livingston, MT as the most advantageous appraisal point. Non-Saw is being appraised to Sandford's mill in Rapid City SD.

E. Silvicultural Description, and Timber Designation

Silviculture Prescriptions are a mix of commercial thinning, overstory removal and one 10 acre "clearcut".

Timber designation is: 195 acres or Designation by Species and Diameter (Overstory Removals and "clearcut" unit), 121 acres of Leave Tree Marking (LTM), 238 acres of Designation by Prescription (DxP), and 41 acres of Cut Tree Marking (CTM).

CONDITIONS OF SALE

A. Sale Area Improvement Needs (SAI)

KV Plan is written for the project and can be found on form 2400-50, and appraisal factsheet for details.

C. Slash Treatment

Whole Tree Yarding is required on all units, with remaining slash lopped and scattered to 18". A deposit will be collected to cover the cost of post-sale landing slash pile burning conducted by

U.S. Forest Service personnel. See the Brush Disposal Treatment Plan FS-2400-62 and appraisal factsheet for details.

D. Water Quality Protection and Erosion Control

Landings, skid trails, and temporary roads will be re-vegetated to stabilize soils. Skid trails are to be laid out to reduce erosion and will require agreement by the timber sale administrator. Skid trails must be at least 100 feet from all live streams except in areas previously identified by U.S. Forest Service personnel (C6.6# Erosion prevention and control). Drainage structures will be required where erosion potential is high. Temporary roads to be closed will be ripped to a depth of 8", installing or cleaning waterbars, scattering wood/rock onto the road for the first 100' to block vehicular travel, and applying seed as needed. Seed that is used will be certified noxious weed-free seed mixture. On temporary roads identified in the EA, Appendix B, to be converted to non-motorized trail use, closure will follow B6.63 without blocking for normal vehicular traffic.

E. Relevant Mitigation Measures & Design Criteria

From the Johnson Creek Environmental Assessment, Chapter 2.

Design Criteria for the Proposed Action

Forest Vegetation

1. Follow snag and coarse woody debris retention direction for the project area outlined in forest plan biodiversity guideline 10 (forest plan pg. 1-29). This does not apply to those areas in the project where reducing coarse woody debris is the purpose (e.g., fuels reduction projects).

In site prescriptions.

2. Locate burn piles at least 15 to 20 feet from residual trees, utility lines, fences, and similar features depending on the size of the pile. This allows for burning in the late fall or early winter.

Landing piles to be 30' from residual trees C6.7#

3. Provide forest vegetation screens between U.S. Highway 14 and recreation facilities (cabins, ski trails, developed recreation sites to provide scenic views and desired recreation experiences. Vary the depth and density of vegetation screens. This will minimize the line or pattern created where the age or structure of the stand changes. Two chains or 132 feet is the minimum effective depth for screening.

In site prescriptions

4. Ensure at least one-end log suspension in the water influence zone and around historic properties. Fell trees in a way that protects historic properties and the vegetation in the water influence zone from damage. Keep log landings and skid trails away from the water influence zone and historic properties.

Protection measures in B provisions and C6.6#

Roads and Equipment

5. Require equipment being used for road construction or timber harvest purposes to be washed prior to arrival on the forest to reduce invasive weed establishment.

Protection measures is B6.35 Equipment cleaning

6. All mechanized operations will be done on ground with less than 35% slope in order to prevent negative soil impacts.

In prescription layout guides

7. Close timber sale roads (temporary, level 1 and level 2) for public safety as necessary during hauling or maintenance activities. This includes all roads within harvest units. See appendix B for list of roads and treatments. Level 2 roads generally have three digit road numbers and are open to public use though high-clearance vehicles may be needed.

Provision C 5.41# closure to use by others, included to require gate to be locked, and C6.35# closure of temporary roads for closure designs.

8. When permanently closing or decommissioning roads, scarifying to a minimum depth of 8 inches and reseedling with a native seed mix would aid in the establishment of vegetation and reduce sediment delivery to streams.

In C5.35# Closure of Temporary Roads

Infrastructure

9. Protect existing improvements and historic properties including, but not limited to, trails, cabins, utility lines, fences, designated parking areas, developed recreation sites. Avoid physical damage to improvements and related damage such as rutting, skidding marks, slash deposits, spills and burn piles within 165 feet (50 meters) of improvements. Improvements include, but are not limited to, those shown in appendix C

B6.22 protection of improvements, B6.221 protection of improvements not owned by Forest Service, B6.24 Protection measures needed for plants, animals, cultural resources and cave resources and C6.24# site specific protection measures are included

10. Protect and/or maintain existing fences located near the cutting units south of U.S. Highway 14 and west of Sibley Lake; they are critical for livestock management in this area.

C6.223 protection of fences included

11. Replace range improvements or build fences to replace natural barriers if treatment activities reduce their effectiveness.

N/A for contract

12. Avoid harvest activities on or adjacent to the snowmobile and Nordic ski trails during the winter sports season (12/15-3/31) annually.

C6.312# Sale operation restrictions included to address this

Wildlife and Fish and Threatened, Endangered and Sensitive Plants

13. Provide appropriate spatial and/or temporal buffers if sensitive species or species of local concern are found during project implementation as determined by an ID team process and approved by the district ranger.

None identified during sale prep, B6.24 Protection measures needed for plants, animals, cultural resources and cave resources is included if any are found.

14. Restrict timber harvest activities from March 15 to August 15 within 2,600 feet (1/2 mile) of any active raptor nest in the project area (USFWS 2002); this applies to active nests discovered after award of the contract. Site-specific modifications may be made by an ID team process approved by the district ranger.

Provision C6.24# addresses this

15. Protect the native mountain sucker population in the South Tongue River from increases in sediment and water temperature resulting from project activities.

N/A for this sale

Soil and Water

16. Limit activities to the dry season or when soils are frozen at least 2 inches deep or covered by greater than one foot of packed snow. Avoid soil-disturbing actions during periods of heavy rain or wet soils.

C6.312# sale operation restrictions addresses this

17. Limit activity on sensitive soils (Cryaquoll soils, Owen Creek-Echemoor-Bynum soils, and Tongue River-Gateway soils) as much as possible. See map in appendix D.

Included in layout guides in prescriptions

18. Locate concentrated use sites (i.e., skid trails, landings, roads, and trails) outside the water influence zone, riparian areas, wetlands, and sensitive soils. Do not locate concentrated use sites on historic properties.

B6.5 Streamcourse protection and C6.6# erosion prevention and control are included, no known historic properties have been location within the sale area

19. Earth material should not be excavated from, or stored in, any wetland, stream, lake, swale, or water influence zone.

B6.5 Streamcourse protection included

CRUISE VOLUMES

This sale was laid out, marked, and originally cruised in the summer of 2011. No record of a check cruise could be found, the sale was subsequently re-cruised and a check cruise is scheduled ASAP. This sale was sampled using the variable radius plot over fixed plot cruise method with 1 sampling strata. Collected field data was entered and processed using the U.S. Forest Service software FSCruiser.

This is a scaled sale estimated to have a value of around \$23,000; therefore, the maximum sampling error for the sale as a whole must be $\pm 30\%$. This information can be found in Chapter 40 of the Timber Cruising Handbook (2409.12). The combined sampling error for this cruise is 16.94% (report DS1, error for net volume).

A. Volume Summary:

Volume Reported by Individual Tree Species

LP&O	SAW live	5634	SAW live	76%	Saw	5,804		
LP&O	SAW dead	169	SAW dead	2%			Live	7075
LP&O	Non-Saw live	1440	Non-Saw live	20%	Non-Saw	1,564		
LP&O	Non-Saw dead	124	Non-Saw dead	2%			Dead	293
CONTRACT VOLUME:		7368		100%		7,368		7368

Volume estimates may be slightly different from other report groupings due to the characteristics of [number rounding](#).
See appraisal spreadsheet, "Vol & Skid-complex appC" tab for volume and percent determination to account for rounding.

B. Contract Volume

The volume components of Engelmann spruce, and other commercial species sawtimber were combined into one contract species group.

[Cruise Volume Reported by Contract Species Groupings](#)

Live and Dead Sawtimber	Net CCF	%
LP and other conifer species	5804	78
Live and Dead POL	Net CCF	%
LP and other species	1564	22

Contract volumes may be slightly different than other reported volumes due to the characteristics of rounding contained in the TIM project management software. (TIM rounds the sum of raw cutting unit volumes contained within each payment unit.) Contract volume is used to determine payments and is the official volume estimate used in the appraisal and the contract.

C. Area Determination

Area determination for this sale was conducted using a Global Positioning System (GPS). Procedures used for determining the acreages of harvest units in the timber sale area are in accordance with the standards set forth in R2 Supplement 2409.12-2000-4, chapter 52.2. GPS data was collected during the 2011 field season.

Acres by cutting unit (GPS)

See attached spreadsheet tab ("factsheet").

D. Contract Volume

Cutting Unit Acres and Net Harvest Volume

Cutting Unit	LP&O SAW LIVE Volume	Dead SAW	LP&O POL LIVE Volume	LP&O POL Dead Volume	Total Volume	Cruise Strata	Unit Acres	Subdivision Unit
4	350	11	90	8	458	1	37	
5	445	13	114	10	582		47	
6	104	3	27	2	136		11	
7	246	7	63	5	322		26	
8	455	14	116	10	594		48	
9	180	5	46	4	235		19	
10	152	5	39	3	198		16	
11	748	22	191	16	978		79	
12	28	1	7	1	37		3	
13	123	4	31	3	161		13	
14	47	1	12	1	62		5	
15	142	4	36	3	186		15	
18	47	1	12	1	62		5	
19	312	9	80	7	409		33	
20	152	5	39	3	198		16	
21	455	14	116	10	594		48	
24	123	4	31	3	161		13	
25	559	17	143	12	731		59	
26	483	15	123	11	632		51	
27	170	5	44	4	223		18	
29	218	7	56	5	285		23	
51	95	3	24	2	124		10	
	5634	169		1440	124	7368		595

APPRAISAL

(FSH 2409.22 Chapter 90) - Refer to chapters 40, 50, or 60 (Black Hills) of FSH 2409.18 for guidance in preparing appraisal section of the report. Explain each cost item in sufficient detail to be understood by a reviewing officer including such items as data sources and appraisal premises to provide a logical method to show that fair market value has been obtained. A benefit of documentation of the original sale premises rests in need for documenting actions for future rate redeterminations.

Refer to elements already discussed in the appraisal report, FSH 2409.18, chapter 40, or other sections of the report by cross-reference to avoid duplication. The soundness of an appraisal is in proportion to the completeness, accuracy, and applicability of the data used, and by the judgment and accuracy with which these data are applied. The presentation should be as brief as practical, yet not to the point of omitting essential information.

A. Appraisal Data

BULLETIN No. BU210716 for Region 2, Zone 1 (NW Intermountain Zone) effective August 8, 2016 until superseded was used for this timber sale appraisal.

B. Skid/Yard (Refer to 2400-17)

The skid/yard cost adjustment (formerly called the logging cost adjustment) is now calculated using the TEA234 MS Access-based Appraisal System. It is based on the difference between the appraised sale and Regional average sale diameter and sale volume per acre. (Reference FSH 2409.22, 51.3 and 51.61).

Base Skid/Yard Cost = \$105.54

Sale Skid/Yard Cost = \$132.54

Skid/Yard Cost Adjustment = \$27.00 (line 12, 2400-17)

C. Haul Cost Calculation (Refer to appraisal spreadsheet, Haul tab)

Sawtimber: Haul to Livingston, MT

POL: Rapid City, SD

Log Truck Haul Time Estimations

*Round Trip Minutes Per Mile are from FSH 2409.22 Sec. 44.1 Exhibit 1

812 Minutes Round Trip Time x \$0.1130/CCF/Minute (FSH 2409.22 Sec. 44.0) =
\$91.89/CCF Haul Cost for Sawtimber

291 miles to Rapid City – average haul 52 miles * \$0.17/mile (FSH 2409.22 Sec. 44.0) =
\$40.63/CCF Haul Cost for NonSaw.

D. Road Maintenance (Refer to “Poison Stewardship app worksheet.xlsx”)

All costs and figures are from the *USDA Forest Service Region Cost Estimating Guide for Road Construction*.

1) Pre-haul Maintenance – Purchaser responsibility

Road	Termini		Miles	Applicable Prehaul Road Maintenance Specifications				
	From	To		T800 - Specs	T802 - Ditch Cleaning	T803 – Blading	T805 – Drainage	T807 - Clearing
152411	0.0	0.60	0.60	X		X	X	X
152413	0.0	0.20	0.20	X		X	X	X

Total Pre-haul maintenance (with inflation)= \$215.06

Drainage structures included in costs.

2) During Road Maintenance – Purchaser responsibility

Road	Termini		Miles	Applicable During Road Maintenance Specifications				
	From	To		T800 - Specs	T802 - Ditch Cleaning	T803 – Blading	T805 – Drainage	T807 - Clearing
194	0.0	1.80	1.80			X	X	

Total during-haul road maintenance (with inflation): \$495.18

Drainage structures included in costs.

3) Post-haul Maintenance – Purchaser responsibility

Road	Termini		Miles	Applicable Post Haul Road Maintenance Specifications				
	From	To		T800 - Specs	T802 - Ditch Cleaning	T803 – Blading	T805 – Drainage	T807 - Clearing
194	0.0	1.80	1.80	X		X	X	
152411	0.0	0.60	0.60	X		X	X	
152412	0.0	0.90	0.90	X		X	X	
152413	0.0	0.20	0.20	X		X	X	
153213	0.0	0.25	0.25	X		X	X	
153214	0.0	0.25	0.25	X		X	X	

Total post-haul road maintenance (with inflation): \$846.55

4) Surface Rock Replacement

NONE

Total Surface Rock Replacement Cost = \$0.00

Cost/CCF = \$0.00/CCF

5) Dust Abatement

Based on the Environmental Assessment dust abatement during road maintenance is not needed, thus a cost adjustment is not necessary for this timber sale.

6) Road Maintenance Summary

Pre-Haul Maintenance	\$215.06
During-Haul Maintenance	\$495.18
Post-Haul Maintenance	\$846.55
Dust Abatement	\$0.00
Snow Removal (NOS)	\$0.00
Total	\$1,556.79
	\$0.21/CCF

Regular Road Maintenance	\$1,556.79
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Surface Rock Replacement (deposit)	\$0.00
Total	\$1,556.79
	\$0.21/CCF

E. Sale Slash Disposal (Refer to Brush Disposal Treatment Plan FS-2400-62)

Required deposits: \$7,967.51 CCF
\$1.08/CCF

F. Temporary Roads (Refer to "JohnsonCk appraisal worksheets.xlsx", temp road tab)

As identified in the Logging Plan, 3.24 miles of temporary road will be needed to complete this sale. See Logging Plan Map for specific locations. All costs and figures are from the *USDA Forest Service Cost Estimating Guide for Road Construction*.

Total temporary road cost = \$17,861.98
Total temporary road cost per CCF = \$2.42

G. Unusual & Quality Adjustments (Refer to appraisal spreadsheet, TS Cost Worksheet tab)

NONE

H. Competition Factor (FSH 2409.22, 51.3, Bulletin No. BU230716)

2/ The competition factor for the Bighorn, Medicine Bow-Routt, Arapaho/Roosevelt and Shoshone will be set at 10% (competitive). The competition factor for the Nebraska and Pike will be 5% for this Bulletin period (non-competitive).

COMPETITION FACTOR by Forest and VALUES based on all species live ADJ BPP.

Bid/Ad LIVE CCF: LP&DF ES PP TF

Zone as a Whole: 1.10

Bighorn	1.19	1.37	0.50	0.30	0.30
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J. Base Rates (2400-17)

Lodgepole pine sawtimber \$3.00/CCF

Lodgepole pine POL \$1.00/CCF

K. Fire Precautionary Period (AT9)

June 30 to October 31

L. Purchaser's Obligation for Fire (Refer to appraisal spreadsheet, TS Cost Worksheet tab)

6 people x 12 hours x 3 days (\$18.00/hour [AD-C]) \$3,888

Rounded to the next \$100 **\$3,900**

M. Termination Date (AT12)

R2 Supplement No. 2409.18-2006-2, Sec. 53.41 states that sales of this size without specified roads should be 4 operating seasons. Termination date for this sale will be **December 31, 2020**.

N. Bid Guarantee (Refer to appraisal spreadsheet, App.Factsheet app a Worksheet tab)

Bid Guarantee: **\$1,900**

O. Performance Bond Calculation (Refer to appraisal spreadsheet, TSCost Worksheet tab)

Bond Based on 10% of Advertised Stumpage Value: **\$2,000.00**

P. Engineering Services

Preconstruction Engineering, Construction Engineering, Deposits, adjustments to project sheets:

\$6,305. Engineering deposits cannot be collected on this deficit sale.